

# Re-examining Crude Drugs used in the Treatment of COVID-19 from Ancient Medical Books

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## ABSTRACT

**Purpose:** Research ancient medical books to find the medicinal ingredients used in the two most widely used recipes for treating COVID-19. **Research materials:** 1. The following materials were used in the study. Including: Lamyn geegen Luvsandanzanjantsan (1649-1704). "Man ngag bdud rtsi zogs ma." Wooden printing block with Tibetan script. 2. Toin Jambaldorj (1792-1855). Gso byed bdud rtsi'i 'khrul med ngos 'dzin bzo rig me long du rnam par shar ba mdzes mtshar mig rgyan zhes bya ba bzhugs so. Wooden printing block with Tibetan script. **Research Methods:** Methods of textual analysis for ancient books and checklist methods were used in the study. **Conclusion:** The most effective and most widely used drugs for the treatment of COVID-19 were Mana-4 and Norov-7 decoctions. The source of these two decoctions is Lamyn geegen Luvsandanzanjantsan's (1649-1704) book "Man ngag bdud rtsi zogs ma". This book was one of the main textbooks at the Medical School established in Mongolia in 1685. The traditional medicinal indications and usages of the 7 medicinal crude drugs included in the composition of Mana-4 and Norov-7 decoctions were studied in detail in Toin Jambaldorj's book "Beautiful Marvelous Eye Ornament." Apart from these 7 medicinal crude drugs, 6 medicinal crude drugs have the effect of treating influenza and influenza-like illnesses according to modern medical theory. Therefore, it has been established that Mana-4 and Norov-7 decoctions have the effect of treating infectious febrile disorders accompanied by cold chills and shivering, preliminary stages of influenza, and open up bodily pores and induce sweat.

**Key words:** Ancient medical books, Traditional medicine, COVID-19, Mana-4, Norov-7, Common cold, Influenza.

## BACKGROUND

The coronavirus (COVID-19) pandemic that broke out at the beginning of the twenty-first century was, on the one hand, a severe challenge to the country's health development level, policy, implementation, and preparedness. On the other hand, it was an assessment of the shortcomings and achievements of the medical and healthcare sectors, and a reminder that such challenges are an integral part of the development of human society and will occur again in the future.

Therefore, we must learn from the past and find solutions to the problems we will face in the future. At the beginning of the COVID-19 pandemic, members of the traditional Mongolian medicine Professional Council under the Ministry of Health, Mongolia, met to discuss and develop traditional medicine treatment guidelines. Subsequently, the Minister of Health issued Order No. A/185 dated March 16, 2020, and the Order "On Approval of Temporary Traditional Mongolian Medicine Treatment Guidelines" came into effect<sup>1</sup>.

Following this order, the Minister of Health issued Order No. A/213 dated April 1, 2020, "On Approval of the Essential Care and Service Package," requires the use of the Essential Care and Service Package in all levels of healthcare institutions<sup>2</sup>. The order approved a package of traditional medical examinations, diagnostics, traditional medical medicines, and therapeutic care and services for primary healthcare institutions,

referral institutions, and other institutions providing traditional medical care.

Thus, the legal basis for the use of traditional medicine and herbs for COVID-19 has been established in Mongolia.

## Purpose of research work

Research ancient medical books to find the medicinal ingredients used in the two most widely used recipes for treating COVID-19.

## RESEARCH MATERIALS AND METHODS

### Research materials

1. The following materials were used in the study. Including:

Lamyn geegen Luvsandanzanjantsan (1649-1704). "Man ngag bdud rtsi zogs ma." Wooden printing block with Tibetan script (9x50 cm) and has 19 pages<sup>3</sup>.

2. Toin Jambaldorj (1792-1855). Gso byed bdud rtsi'i 'khrul med ngos 'dzin bzo rig me long du rnam par shar ba mdzes mtshar mig rgyan zhes bya ba bzhugs so. Wooden printing block with Tibetan script (54.5x10.3 cm). It has 347 pages with illustrations of medicinal herbs, minerals, and animal origins of crude drugs<sup>4</sup>.

### Research methods

Methods of textual analysis for ancient books and checklist methods were used in the study.

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## RESULTS

### 1. Experience in treating COVID-19 with traditional medicine

The Minister of Health's Order No. 1a/5417 dated December 10, 2020, "On Ensuring Preparedness," specified the following traditional recipes and herbs for use in COVID-19: Mana-4, Norov-7, Lider-7, Zovu-8 (Erkhem-8), Sorool-4, Lotsadgünsel, and Banzdoo-12. The following traditional medicine hospitals have used these medicines effectively in the COVID-19 pandemic.

#### - Hospital of the Institute of Traditional Medicine and Technology

The Hospital of the Institute of Traditional Medicine and Technology has become an important target for preventing and combating the COVID-19 pandemic, protecting and treating public health. Therefore, in accordance with the order of the Minister of Health, 100 temporary beds were opened for inpatient treatment of citizens infected with Coronavirus and operated from June 18, 2021, to February 12, 2022.

During this period, a total of 1,717 patients infected with Coronavirus were provided with health care and services, combining Western medicine and traditional medicine. At the same time, 1,695 patients improved and were discharged from the hospital after using a drug treatment package based on traditional medicine theory, while 22 patients were transferred to the next-level hospital in accordance with the procedure.

Of the patients admitted to the Hospital of the Institute of Traditional Medicine and Technology, 712 were male and 1005 were female, totaling 1717 patients. Of the total, 84 were children aged 0-16, 862 were women over 55, and 275 were men over 60. In addition, 79 were elderly people over 80, with the oldest patient being 97. 87% of the patients came from the capital, Ulaanbaatar, and 13% from rural areas. When treating COVID-19 patients using traditional medicine theories and methods, traditional medicine packages were introduced into the treatment and used according to the patient's age and physical condition, which had good results. During the COVID-19 infection, the delta and omicron forms of coronavirus were prevalent among patients admitted to the Hospital of the Institute of Traditional Medicine and Technology. No mortality was recorded<sup>5</sup>.

#### - Central Hospital of Traditional Medicine of the Mongolian National University of Medical Sciences

During the COVID-19 pandemic, the Central Hospital of Traditional Medicine of the Mongolian National University of Medical Sciences provided medical care and services with 78 beds. Between May and August 2021, a total of 603 patients were hospitalized and treated. During this period, a total of 9 doctors and 8 nurses at the Central Hospital of Traditional Medicine worked in shifts and provided standard treatment as specified in the COVID-19 clinical guidelines, as well as traditional medicine and surgical treatment. Among the curative treatments, bloodletting, cupping, and acupuncture were performed according to the appropriate patient and technology, and the treatment results were good. Also, in severe and critically ill inpatients, acupuncture and needle therapy were used to treat secondary symptoms such as constipation, urinary retention, and constipation, and the results were seen within 2-3 days. No mortality was recorded<sup>6</sup>.

#### - Sindura-Med Hospital of Mongolian University of Pharmaceutical Sciences

Sindura-Med Hospital of the Mongolian University of Pharmaceutical Sciences provides health care and services in the fields of traditional medicine and modern medicine. This hospital is a training base hospital affiliated with the Mongolian University of Pharmaceutical Sciences. The hospital was founded in 2019 under the name "Sindura-Med" Hospital, and has 30 inpatient beds in a 1,500 m<sup>2</sup> building, and

is accredited to receive more than 100 outpatients per day, conduct examinations, diagnoses, and analyzes. It provides health care and services in the fields of traditional medicine and internal medicine with preferential health insurance, regardless of jurisdiction. As part of its social responsibility, Sindura-Med hospital provided inpatient health care services to patients infected with COVID-19 during the 2020 and 2021 COVID-19 pandemic.

From May 2021 to November 2021, a total of 740 people diagnosed with COVID-19 were hospitalized, of which 551 were mild, 180 were rather severe, 21 were severe, and 16 were transferred. Inpatients diagnosed with COVID-19 were diagnosed and treated in accordance with the clinical guidelines approved by the order of the Minister of Health, and the additional use of traditional medicines such as Mana-4, Norov-7, and Lider-7 had a very positive effect on the treatment results. In addition, some patients were treated with traditional treatments such as moxibustion, mild bloodletting, and throat and nose congestion. Patients who died from COVID-19 at the hospital were not recorded<sup>7</sup>.

Among the drugs used by traditional medicine doctors in these three hospitals to treat COVID-19 by traditional medicine recipes, including Mana-4, Norov-7, Lider-7, Zovu-8 (Erkhem-8), Sorool-4, Lotsadgünsel, and Banzdoo-12, Mana-4 and Norov-7 accounted for the largest percentages. In particular, the most widely used and effective drugs were Mana-4 and Norov-7. Therefore, our next study focused on analyzing the source and composition of Mana-4 and Norov-7<sup>8</sup>.

### Research on the two main drugs used for COVID-19

Mana-4 and Norov-7 are decoction medicines in terms of their medicinal form. Therefore, these medicines are boiled and drunk. The main source of these two medicines is Lamyn geegen Luvsandanzanjantsan's "Man ngag bdud rtsi zags ma"<sup>9</sup>. The author of this book, Lamyn geegen Luvsandanzanjantsan (1649-1704), wrote the classic work of traditional medicine in Mongolia, the five main manuals for Mongolian doctors and maarambas. He also founded the first Medical school based on Buddhist knowledge of medicine in Mongolia in 1685. The full name of this book is "Mkhan chen chos kyi rgyal po'i gsung 'bum las man ngag bdud rtsi zags ma bzhugs so." A brief English translation, "Ambrosia essence drops," is a book with a wooden printing block with Tibetan script. Although Lamyn geegen Luvsandanzanjantsan is Mongolian, he wrote his book in Tibetan<sup>10</sup>. A book of eighteen pages in total, in the form of a sutra. It is written by combining his own experience and lessons on the treatment of 22 diseases, including wind (khii), bile (shar), and phlegm (badgan) disorders, acute fever, arthritis, five visceral and sex hollow organs diseases, pediatric disorders, skin diseases, acute contagious diseases, common cold, influenza, etc. The main ingredients used to treat the common cold, influenza are Mana-4 and Norov-7.<sup>11</sup> This ingredient was used in Mongolia for COVID-19.

#### Mana-4 Decoction

Other names: Mana shitan, Tsagaantan

Ingredients:

1. *Mana (Inula helenium L.)*
2. *Lider (Sophora alopecuroides L.)*
3. *Gandigar (Sambucus manshurica L.)*
4. *Tsagaan gaa (Zingiber officinalis)*

How to make: Grind these into a coarse powder and use it as a decoction.

Quality: Coolness

Indication: Clears heat or fever and relieves phlegm.

Usage: It is used for infectious fever, preliminary stages of fever, pale, brown phlegm, fresh fever with wind, and wind, blood disturbance, as well as common cold.

Directions: Take 2-4 grams 2-3 times a day, boiled and drunk warm<sup>12</sup>.

## Norov-7 Decoction

Other names: Erdene (Precious)-7, Norov duntan

Ingredients:

1. *Mana* (*Inula helenium* L.)
2. *Lider* (*Sophara alopecuroides* L.)
3. *Gandigar* (*Sambucus manshurica* L.)
4. *Tsagaan gaa* (*Zingiber officinalis*)
5. *Jurur* (*Emblica officinalis*)
6. *Barur* (*Terminalia bellirica*)
7. *Arur* (*Terminalia chebula*)

How to make: Grind these into a coarse powder and use it as a decoction.

Quality: Slightly cool

Indication: Clears heat or fever and treats heat

Usage: Eliminates the preliminary stages of fever, common cold, flu, acute respiratory infections, wind, and blood disturbance.

Directions: Take 2-4 grams 2-3 times a day, boiled and drunk warm.<sup>13</sup>

## DISCUSSION

Norov-7 decoction is derived from Mana-4 decoction. In other words, Mana-4 decoction is supplemented with three plants: *Emblica officinalis*, *Terminalia bellirica*, and *Terminalia chebula*, to form Norov-7 decoction. The Indication of these two drugs is basically the same. The main difference is expressed in the old Mongolian idiom. This says that the Mana-4 decoction that the populace use, and the Norov-7 decoction that the nobles and aristocracy take. This is because the 4 medicinal plants included in Mana-4: *Sophora alopecuroides* L, *Sambucus manshurica* L, *Zingiber officinale*, and *Inula helenium* L are plants that grow in Mongolia, so the price is cheap. However, the Norov-7 decoction is made by adding *Emblica officinalis*, *Terminalia bellirica*, and *Terminalia chebula* to the Mana-4 decoction. *Emblica officinalis*, *Terminalia bellirica*, and *Terminalia chebula* 3 are imported from India and China, so they are expensive. Therefore, it means that nobles and the aristocracy buy and drink them.

The main actions of these two decoctions can be described by modern medical theory as follows.

- Infectious febrile disorders accompanied by cold chills and shivering,
- Preliminary stages of influenza when there are cold chills, headache, and pain in the hand and foot joints,
- Opens up bodily pores and induces sweat so on.

## Study of the composition of the Norov-7 decoction

We have highlighted the 7 plants that make up the Norov-7 decoction in Toin Jambaldorj's "Gso byed bdud rts'i 'khrul med ngos 'dzin bzo rig me long du rnam par shar ba mdzes mtshar mig rgyan zhes bya ba bzhugs so". This book is abbreviated in English as "Beautiful Marvelous Eye Ornament".<sup>14</sup>

Mongolian noble lama, Toin Jambaldorj (1792-1855), wrote this ancient book on the Materia Medica of traditional Mongolian medicine

in 1817 and 1823. The books cover medicinal crude drugs obtained from plants, animals, and include more information about mineral-oriented medicine than other ancient medical books.<sup>15</sup>

Toin Jambaldorj's book "Beautiful Marvelous Eye Ornament" describes each of the medicinal crude drugs included in Norov-7 decoction as follows:

1. Mongolian name: *Lider*

Tibetan: *sle tres*

Latin: *Sophara alopecuroides* L.

The *lider* (*Sophara alopecuroides* L.) has sweet, bitter, and spicy tastes; it can eliminate wind and cure various diseases. It is said to be very good for treating and reducing the heat of the stomach and intestines, and to balance the accumulated heat by softening it.

2. Mongolian name: *Gandigar*

Tibetan: *kan ta ka ri*

Latin: *Sambucus manshurica* L.

The *gandigar* (*Sambucus manshurica* L.) is sweet, slightly bitter, and slightly spicy, so it removes wind, heat, and a light cough. It is said to be very good for all lung diseases.

3. Mongolian name: *Jurur*

Tibetan: *skyu ru ra*

Latin: *Emblica officinalis*

The *jurur* (*Emblica officinalis*) is refreshing and pungent, and it eliminates phlegm, jaundice, blood, and especially diabetes.

4. Mongolian name: *Tsagaan gaa*

Tibetan: *ska sgya*

Latin: *Zingiber officinalis*

The bark of the *tsagaan gaa* (*Zingiber officinalis*) is bitter, and the flesh is hot, which helps to eliminate wind and melt blood clots.

5. Mongolian name: *Barur*

Tibetan: *ba ru ra*

Latin: *Terminalia bellirica*

The *barur* (*Terminalia bellirica*) helps to dry up the yellow water and water, and helps the liver. It is also sweet and balanced after being absorbed, eliminating phlegm, bile, and yellow water.

6. Mongolian name: *Mana*

Tibetan: *ma nu*

Latin: *Inula helenium* L.

The *mana* (*Inula helenium* L.) is warm and dry, so it suppresses wind, creates warmth in the stomach, absorbs diet, and calms the mind. It cures wind and blood disorders and fevers.

7. Mongolian name: *Arur*

Tibetan: *a ru ra*

Latin: *Terminalia chebula*

The *arur* (*Terminalia chebula*) is the king of all medicines, eliminating all diseases, because it has the six tastes that are complete. It is also said that it eliminates all diseases, such as wind, bile, phlegm, and chronic diseases. It is especially said that it is a good medicine because it can achieve all desired things<sup>16</sup>.

Lamyn gegeen Luvsandanzanjanjantsan (1649-1704) in his book “Man ngag bdud rtsi zogs ma” stated that according to traditional medical theory, the decoction medicine of Mana-4 and Norov-7 is effective in the acute stage of influenza and flu-like symptoms, mild fever, acute respiratory infections, blood pressure, and has the effect of inducing sweat. According to modern medical theory, it is deemed effective for infectious febrile disorders characterized by cold chills and shivering, the preliminary stages of influenza, accompanied by cold chills, headaches, and pain in the joints of the hands and feet. Additionally, it opens bodily pores and induces sweating.

Since the COVID-19 pandemic, Mongolians have been using these two decoctions extensively for flu and flu-like illnesses. Mongolia has a harsh climate, with 90 days of the year being very cold and 180 days of the year being cool, so flu and flu-like illnesses are common. The best drugs of traditional medicine to treat these illnesses in the early stages are Mana-4 and Norov-7 decoctions.

## CONCLUSION

1. The most effective and most widely used drugs for the treatment of COVID-19 were Mana-4 and Norov-7 decoctions. The source of these two decoctions is Lamyn gegeen Luvsandanzanjanjantsan's (1649-1704) book “Man ngag bdud rtsi zogs ma”. This book was one of the main textbooks at the Medical School established in Mongolia in 1685.

2. The traditional medicinal indications and usages of the 7 medicinal crude drugs included in the composition of Mana-4 and Norov-7 decoctions were studied in detail in Toin Jambaldorj's book “Beautiful Marvelous Eye Ornament.” Apart from these 7 medicinal crude drugs, 6 medicinal crude drugs have the effect of treating influenza and influenza-like illnesses according to modern medical theory. Therefore, it has been established that Mana-4 and Norov-7 decoctions have the effect of treating infectious febrile disorders accompanied by cold chills and shivering, preliminary stages of influenza, and open up bodily pores and induce sweat.

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